11. A_Eleven - Block

Program Name: A_Eleven.java   **Input File: a_eleven.dat**

This two-player game is played on a standard 8X8 grid, as in checkers or chess. It involves rectangular blocks that span two squares, placed either vertically or horizontally. Each player takes a turn placing a piece, always in the same direction for each player. The first player chooses the desired direction, and the second player uses the other direction.

The idea of the complete game is to be the last player to place a block on the board, preventing the other player from any more possible moves. The (8,1) block is located at the top left corner of the board, at row 8, column 1, and each position in the data represents a (row, column) location in the grid.

Below is a sample board after 5 moves by each player. The **H** player (the one with horizontal pieces), owns the blocks indicated by "******" at positions (3,3), (4,5), (5,1), (6,2) and (8,1), and has the next move.
The **V** blocks, shown as two vertically stacked "**#**" signs, are indicated by the lower of the two positions, which means there are

*	*		#				
			#				
	*	*	#		#		#
*	*		#		#		#
			*	*	#		
		*	*			#	

V blocks at positions (3,7), (5,4), (5,6), (5,8) and (7,4). The "**#**" signs at (7,4) and (8,4) indicate the topmost **V** block.

In the example shown, based on the first data sample, your job is to calculate onto how many places of the board an "**H**" block can be placed next. The first letter of the data sample indicates the player whose move is next.

For example, on the top row, an "H" block could be placed at position (8,5), (8,6), or (8,7), each position indicating the left-most of the two spaces required. In other words, an H piece placed at position (8,7) would also cover (8,8). There are 27 possible placements in this situation for the next move for an "H" block as the next move - 3 on the top row, 5 on the next, none on row 6 or 5, 3 on row 4, 2 on row 3, and 7 each on the bottom two rows.

Input: A data file with several sets of data. Each data set begins with the letter V or H, indicating which player went first AND whose turn it is next, followed by an integer N indicating how many pieces each player has played, followed by N pairs of numbers indicating marker positions for the first player, and then N more marker positions for the second player. The first line of sample data below indicates the board shown above.

Output: An integer M indicating the number of possible next moves for the first player.

Sample Input:
```
H 5 3 3 4 5 5 1 6 2 8 1 3 7 5 4 5 6 5 8 7 4
V 8 6 1 6 3 6 5 6 7 3 1 3 3 3 5 3 7 2 1 5 1 5 3 5 5 5 7 8 2 8 4 8 6
H 8 2 1 5 1 5 3 5 5 5 7 8 2 8 4 8 6 6 1 6 3 6 5 6 7 3 1 3 3 3 5 3 7
```

Sample Output:
```
27
18
12
```